



Indian Health Service
Sanitation Facilities Construction Program

Pine Ridge Village
Waste Water Treatment Facility &
Wetlands Project

Presented by
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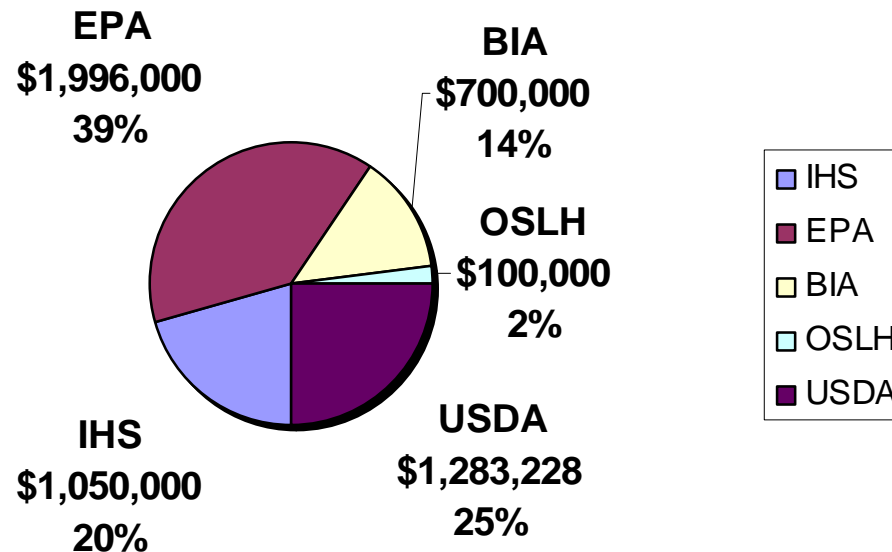
Pine Ridge Wastewater Treatment Facility & Wetlands Project

Design Parameters

- Existing Average Daily Flow = 360,000 gpd
- Future Average Daily Flow = 590,000 gpd
- 60 gpcd of wastewater
- Existing Population of 5500 people with 2.5% growth per year for a future population of 9,000
- 20-year design capacity with option for expansion within project area.
- Fermentation pits designed to account for 0.17 # BOD/capita-day
- 150 Day detention time in secondary cells for storage
- Wetland Maximum Loading Rate: 25,000 gpd/acre
- Discharge after 2 years of operation w/ discharge rate at design capacity of 500 gpm
- Lift Station Renovation: Install Pump Capacity of 800 gpm (2) stand alone 125 HP pumps with additional 125 HP standby pump
- 12-inch PVC Sewer Force Main sized for pumping capacity of 1220 gpm

Pine Ridge Wastewater Treatment Facility & Wetlands Project

Pine Ridge Wastewater Treatment Facility & Wetlands Contributions
Total Contributions Secured as of 12/31/2008: \$5,129,228



Contributors Sign Posted at Job Site





Pine Ridge Wastewater Treatment Facility & Wetlands Project

Construction FACTOIDS:

- Stripping & Grubbing: 123 acres (Equivalent to 93 NFL Football Fields in area)
- Earthwork (excavation): 721,676 CY (Equivalent to 338' 2" of earth piled over one football field).
- Total Area Seeded and Fertilized: 66 acres
- Rip Rap Delivered: 10,033 CY or 12,986.40 Tons (Enough to cover one football field with 9" diameter rock to a height of 4' 8")
- Geotextile Rolled Out: 39,854 SY (enough to cover 6.2 football fields)
- Fencing Installed: 10,074 LF (almost 2 miles of fencing)
- Silt Fence: 1100 LF
- Installed PVC Transfer Piping: 7,420 LF
- Graveled Access Road: 4,700 LF
- Mulch: 145.5 Tons (322 Round Bales)
- Concrete Manholes: 6
- Concrete Distribution Boxes: 3
- Concrete Flow Control Structures w/ "Thirsty Ducks": 2
- Concrete Flow Measurement Control Structure: 1



Pine Ridge Wastewater Treatment Facility & Wetlands Project

Construction FACTOIDS (Continued):

- Installed 12-inch PVC Sewer Force Main: 8,925 LF
- Road Bores: 1 @ 70 feet in length
- 125 HP Sewage Pumps Installed: 2 + 1 pump on stand by
- Primary Treatment Cells: 3 EACH @ 3.7 acres = 11.1 acres
- Secondary Treatment Cells: 2 EACH totaling 37.44 acres
- Wetland Cells: 4 EACH (2 EA @ 8 Ac + 2 EA @ 8.3 Ac), totaling 32.6 acres
- Contractors: Red Lake Builders, Inc & O'Bryan Contracting
- Anticipated Construction Costs To Date: \$4,240,292.60
- Waste Water Treatment Facility & Wetlands Completion Date: November 28, 2008
- Pine Ridge Lift Station Renovation and Sewer Force Main Completion Date: December 30, 2008 (anticipated)



Site Location: May 31, 2006





Site Location: August 19, 2008



East Primary Cell with 19 Feet Deep Fermentation Pit
Note: Primary Cell (10 feet deep)

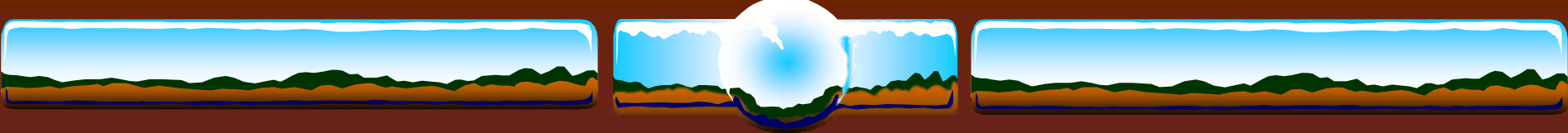


“Thirsty Ducks” Flow Control Structure #2
(Typically used in storm water discharge applications)



Two New Sewage Pumps
(125 HP Fairbanks Morse: Capable of Pumping 800 GPM at 245 TDH)





Road Boring Under Slim Buttes Road 20-inch Steel Encasement Pipe w/ 12-inch PVC Carrier Pipe



Entrance Gate w/ Posted Warning Sign and Cattle Guard



Geotextile & Rip Rap Installation





Earthwork (excavation)
Tandem Scrapers (10 cy each) pulled by JD Tractor
Average Daily Excavation: 18,000 CY



Transfer Piping



Paying Attention to Details
Secondary Cell #2 Water Level Indicator



Wetland Cells

10-inch HDPE Header Piping

West Two Cells (8.0 acres each) & East Two Cells (8.3 acres each)



Fertilizing, Seeding and Disking



- Five Seed Mix Applied at 18 Pounds/Acre
- Fertilizer Applied at 100 Pounds/Acre of 18-46-0
- Clean Straw Mulch Applied at 2000 Pounds/Acre



- Western Wheat
- Green Needlegrass
- Killdeer Sideoats Grama
- Mandan Canada Wildrye
- Bad River Bluegrama



Mulching 145.5 Tons of Clean Straw





Pine Ridge Sewage Lift Station Renovation



The Completed Project (December 7, 2008)



The Completed Project (December 7, 2008)
Looking Northeast Toward Village of Pine Ridge





Beneficial Use (Start Up) of WWTF & Wetlands

Waste Water Filling Up East Fermentation Pit – Outer Primary Cell





Questions?

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